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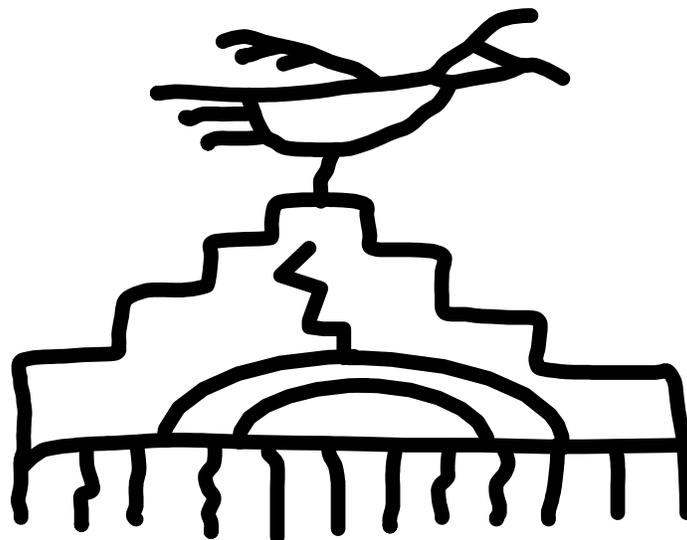
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LIST OF ILLUSTRATIONS

Throughout this report you will find a collection of a dozen drawings illustrating prehistoric petroglyphs and pictographs from New Mexico which represent ancient symbols pertaining to water, moisture, and rain. The various native cultures who have inhabited this arid land we now call New Mexico were all concerned about moisture, and expressed this as a dominant theme in their religious and ceremonial activities, including their rock art. These ancient images carved and painted on stone were means for appealing to the spiritual and supernatural realm for adequate moisture to sustain the sacred web of life upon which all life depended. These images therefore seem appropriate for enlivening this report on New Mexico's water resources. They are taken from the recently published book *Signs of Life - Rock Art of the Upper Rio Grande*, by Dennis Slifer, a geologist/water resource specialist employed in the Surface Water Quality Bureau at the New Mexico Environment Department (NMED). Using these illustrations in the 1998 CWA § 305 (b) Report To Congress is especially timely and appropriate as it discusses the importance of the Rio Grande, and of water in general, so does *Signs of Life...* in the symbology, function, and distribution of the rock art, and places it in a watershed and landscape context. Mr. Slifer combines his professional knowledge and interest in the region's water resources with an avocational interest in rock art and prehistoric conditions that reflect humanity's universal nature and concerns. The editor gratefully acknowledges permission granted by Mr. Slifer and his publisher, Ancient City Press of Santa Fe, to insert these illustrations.

Page	Description
xii	<i>A Jornada Style</i> (600-1400 A.D.) petroglyph from the Mogollon culture area near Capitan. The stepped cloud terrace design represents rain clouds, and in this case it incorporates a fringe of rain falling from the bottom, a rainbow and lightning bolt inside the cloud, and a bird perched on top. The conflation of all these symbols no doubt intensified the potency of this rainmaking image and ensured bountiful life-giving moisture for these desert farmers and foragers.
xvii	Pueblo people's petroglyph of a fish, in the <i>Rio Grande Style</i> (1300 to 1600 A.D.), from cliffs along the Santa Fe River at La Cieneguilla in Santa Fe County. <i>Cieneguilla</i> is Spanish for 'little marsh', and indicates the area was once a rare oasis of wetlands and riparian area in an arid region. These resources have been degraded historically, but recent efforts to form a Santa Fe River watershed coalition, along with regulatory actions by NMED and the federal Bureau of Land Management to improve water quality and establish an "Area of Critical Environmental Concern" promise to restore the area and its water resources to a better measure of ecological health.
5	<i>A Jornada Style</i> pictograph of a ceremonial mask painted in red mineral pigment on the wall of a cave in the Mogollon region. The mask includes two fish symbols for eyes. <i>Jornada Style</i> rock art occurs in the southern part of New Mexico, and typically includes motifs representative of concerns for moisture.
16	Another pictograph in the <i>Jornada Style</i> found on a protected rock wall in the Mogollon region of southern New Mexico. This red mineral pigment image is known as the "Thirsty Mask" because of the protruding tongue; it marks the location of a deep natural bedrock cistern that collects rainfall runoff and stores it for months ~ a precious resource in the harsh Chihuahuan Desert surrounding the site. The rock surface below this pictograph has been polished smooth by the bodies of countless generations of Native Americans climbing down to the water.
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72	Tanoan Pueblo people's pictographs at a remote ceremonial rock shelter in the Galisteo Basin southeast of Santa Fe. The main figure depicts a female (identifiable by the hair style) carrying a large water pot on her head, next to a snake and a circular design. Water imagery predominates here ~ Pueblo women carried water from streams or springs, sometimes for great distances, in pots on their heads, and snakes are associated with water, especially as guardians of springs and underground waters. The Galisteo Basin supported dozens of large pueblos between approximately 1250 and 1600 A.D.; the area is now nearly abandoned in terms of human population.

- 82 *Jornada Style* petroglyph near Capitan portraying two humpbacked figures holding aloft a dragonfly. This may be a depiction of a mythological or supernatural event, or a metaphorical representation dealing with moisture and fertility rather than physical reality. Humpbacked figures are associated with fertility, moisture, and power in a number of Southwestern cultures, while the dragonfly, as a moisture-loving creature, is also imbued with spiritual significance related to water. The dragonfly may have been revered as a water-related deity or totem by the Mogollon natives who lived nearby. This site is adjacent to a healthy wetland associated with a small perennial creek that has been dramatically restored by the owner's grazing reforms and rangeland improvements, and currently (as it did prehistorically) provides excellent habitat for dragonflies as well as other water-loving creatures.
- 110 *Rio Grande Style* Pueblo people's petroglyphs at Black Mesa near the Rio Grande and Rio Chama confluence. Shown are the horned serpent, *Awanyu*, and the humpbacked phallic flute player, *Kokopelli*. The horned serpent is found in rock art of the Pueblo natives and in the Jornada Mogollon region of southern New Mexico; it is a potent water deity that was adopted into the religious beliefs of Rio Grande area cultures from an ancient Mexican/Aztec analog known as *Quetzalcoatl* (the feathered serpent). The flute player is foremost a fertility symbol among Southwestern cultures, and is often associated with moisture and water.
- 133 *Jornada Style* petroglyph on a large boulder near Las Cruces, depicting the water deity *Tlaloc*. This supernatural figure is found at nearly all *Jornada Style* rock art sites throughout the Chihuahuan Desert, and can be identified by the large goggle-eyes and trapezoidal torso decorated with geometric motifs such as the step fret designs related to the cloud terrace symbol for rain clouds. This prominent image in Mogollon culture was derived from an ancient Mesoamerican storm god, and is found in association with water resources such as streams, springs, or natural bedrock cisterns and at sacred shrines and sites that were probably used for rainmaking rituals.
- 142 *Jornada Style* petroglyph of a fish from the Three Rivers site in the Tularosa Basin near Carrizozo. Nearby Three Rivers Creek is the only perennial stream in a huge arid area, and supported fish as well as Mogollon pithouse villages. The depiction of a small human shape inside the body of the fish is reminiscent of the Biblical tale of Jonah and the great fish, and may in fact record some long forgotten Mogollon tale or mythological event. *Jornada* rock art, at Three Rivers particularly, is fascinating for the many whimsical portrayals of various creatures, but rather than being a record of the fauna here instead portrays creatures and events in the supernatural realm.
- 148 Pueblo people's petroglyphs in the Piro Province, *Rio Grande Style*, from cliffs facing the Rio Grande north of Socorro. The stepped design is known as a cloud terrace or cloud altar, a very common motif in rock art of the upper Rio Grande that represents the towering thunderhead clouds which bring essential summer rains to the region. The head or mask (with single horn and a feather) on top of the cloud terrace probably represents a kachina or spirit associated with rain and clouds.



LIST OF ACRONYMS

AIP	Agreement-In-Principle
AST	Above-ground storage tank
BLM	United States Bureau of Land Management
BMMR	New Mexico Bureau of Mines and Mineral Resources
BMP	Best management practice
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CWL	Chemical Waste Landfill
COA	City of Albuquerque
COC	Constituents of Concern
CPB	Construction Programs Bureau, New Mexico Environment Department
CWA	Clean Water Act
DA	New Mexico Department of Agriculture
DGF	New Mexico Department of Game and Fish
DLG	Digital Line Graph database, an information system of the United States Geological Survey
DOD	United States Department of Defense
DOE	United States Department of Energy
DOI	United States Department of Interior
DRASTIC	<i>Depth to water; (net aquifer) Recharge; Aquifer media; Soil media; Topography; Impact on the vadose zone media; and Conductivity database of the United States Environmental Protection Agency</i>
DWB	Drinking Water Bureau, New Mexico Environment Department
EID	Environmental Improvement Division, precursor to the New Mexico Environment Department
EMNRD	New Mexico Energy, Minerals and Natural Resources Department
EPA	United States Environmental Protection Agency
ER	Environmental restoration
ET	Evapotranspiration
FU	Field unit
GIS	Geographic Information System
GWPRB	Ground Water Protection and Remediation Bureau, New Mexico Environment Department
IRP	Installation Restoration Project
ITRI	Inhalation Toxicology Research Institute
ISC	New Mexico Interstate Stream Commission
KAFB	Kirtland Air Force Base
LAAO	Los Alamos Area Office, United States Department of Energy
LANL	Los Alamos National Laboratories
LRRR	Lovelace Respiratory Research Institute
LUST	Leaking underground storage tank
LWDR	Liquid Waste Disposal Regulations
LWDS	Liquid Waste Disposal System
MEK	Methyl ethyl ketone
MMRD	Mining and Minerals Division
MOA	Memoranda of agreement
MODFLOW	Modular three-dimensional finite-difference ground water model software developed by the USGS
MWPP	Municipal Water Pollution Prevention Program
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NFA	No Further Action
NMED	New Mexico Environment Department
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	Nonpoint source
NRCS	Natural Resource Conservation Service, United States Department of Agriculture
NRCC	Natural Resource Conservation Commission
OCC	New Mexico Oil Conservation Commission

OCD	Oil Conservation Division, New Mexico Energy, Minerals and Natural Resources Department
OSE	Office of the State Engineer
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PNM	Public Service Company of New Mexico
PPP	Pollution Prevention Plans
PRS	Potential Release Site
PSR	Point Source Regulation Section, Surface Water Quality Bureau of the New Mexico Environment Department
QA/QC	Quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation work plan
RHWMB	Radioactive and Hazardous Waste Material Bureau, New Mexico Environment Department
RN	Radionuclide
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SER	Sandia Engineering Reactor
SHTD	New Mexico State Highway and Transportation Department
SIC	Standard Industrial Classification
SNL	Sandia National Laboratories
SPD	State Parks Division; New Mexico Energy, Minerals and Natural Resources Department
STORET	STOrage and RETrieval database of the United States Environmental Protection Agency
SVOC	Semi-volatile organic compound
SWA	Solid Waste Act
SWCC	Soil and Water Conservation Commission
SWCS	Soil and Water Conservation Service
SWHCP	Site-Wide Hydrogeologic Characterization Project
SWQB	Surface Water Quality Bureau, New Mexico Environment Department
SWMU	Solid Waste Management Unit
TA-	Technical Area (-integer), Los Alamos National Laboratories
TDS	Total dissolved solids
TMDL	Total maximum daily load
TSDF	Treatment, storage or disposal facilities for hazardous waste
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground storage tank
USTB	Underground Storage Tank Bureau, New Mexico Environment Department
VCM	Voluntary Corrective Measures
VOC	Volatile organic compound
WBS	Water Body System database of the United States Environmental Protection Agency
WIPP	Waste Isolation Pilot Project
WHPP	Wellhead Protection Program, a function of NMED's Drinking Water Bureau
WQCC	New Mexico Water Quality Control Commission